

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A cheese snack, comprising:

an extruded annular natural cheese product;

a flavoring core co-extruded within said natural cheese product, said core being normally flowable at room temperature, said product and core having substantially planar end faces with said core being exposed at said end faces; and

wherein said ~~cheese snack is processed such that~~ core does not substantially flow out of said natural cheese product prior to consumption when said product is stored at room temperature.

Claim 2 (currently amended): A cheese snack as set forth in claim 1 wherein said natural cheese product is selected from the group consisting of mozzarella, cheddar and Monterey Jack cheese.

Claim 3 (original): A cheese snack as set forth in claim 1 wherein said core is selected from the group consisting of pizza sauce, salsa, soft cheese, peanut butter and fruit flavoring.

Claim 4 (original): A cheese snack as set forth in claim 1 wherein said core has a normal viscosity of about 100-500 grams when measured by a Texture Profile Analyzer at room temperature before said cheese snack is formed.

Claim 5 (original): A cheese snack as set forth in claim 1 wherein said flavoring core contains at least one of the group consisting of flavoring, maltodextrine, starch and hydrocolloids.

Claim 6 (original): A cheese snack as set forth in claim 5 wherein said flavoring core contains up to about 1.5% starch.

Claim 7 (original): A cheese snack as set forth in claim 5 wherein said flavoring core contains up to about 3% maltodextrine.

Claim 8 (original): A cheese snack as set forth in claim 5 wherein said flavoring core contains pieces of flavoring material.

Claim 9 (original): A cheese snack as set forth in claim 1 and further comprising an exterior coating on said cheese product.

Claim 10 (original): A cheese snack as set forth in claim 1 wherein said cheese product and flavoring core are frozen for a time sufficient to prevent water in said core from migrating into said cheese product.

Claim 11 (original): A cheese snack as set forth in claim 1 wherein said flavoring core contains at least one hydrocolloid in an amount sufficient to prevent said flavoring core from leaking out of said cheese product but to prevent said core from drying out.

Claim 12 (original): A cheese snack as set forth in claim 11 wherein said one hydrocolloid is present in an amount equal to about 0.2-0.4% by weight.

Claim 13 (original): A cheese snack as set forth in claim 11 wherein said hydrocolloid is selected from the group consisting of guar, locust, xanthan, agar and carrageenan.

Claim 14 (new): A cheese snack as set forth in claim 1 wherein said flavoring core consists of non-cheese substances.

Claim 15 (new): A cheese snack as set forth in claim 1 wherein said cheese snack has a normal processing temperature.

Claim 16 (new): A cheese snack, comprising:

an extruded annular natural cheese product;

a flavoring core co-extruded within said natural cheese product, said core containing water and being normally flowable at room temperature, said product and core having substantially planar end faces with said core being exposed at said end faces; and

wherein said water does not migrate from said core to said natural cheese product when said product is stored at room temperature.

Claim 17 (new): A cheese snack as set forth in claim 16 wherein said natural cheese product is selected from the group consisting of mozzarella, cheddar and Monterey Jack cheese.

Claim 18 (new): A cheese snack as set forth in claim 16 wherein said core is selected from the group consisting of pizza sauce, salsa, soft cheese, peanut butter and fruit flavoring.

Claim 19 (new): A cheese snack as set forth in claim 16 wherein said core has a normal viscosity of about 100-500 grams when measured by a Texture Profile Analyzer at room temperature before said cheese snack is formed.

Claim 20 (new): A cheese snack as set forth in claim 16 wherein said flavoring core contains at least one of the group consisting of flavoring, maltodextrine, starch and hydocolloids.

Claim 21 (new): A cheese snack as set forth in claim 20 wherein said flavoring core contains up to about 1.5% starch.

Claim 22 (new): A cheese snack as set forth in claim 20 wherein said flavoring core contains up to about 3% maltodextrine.

Claim 23 (new): A cheese snack as set forth in claim 20 wherein said flavoring core contains pieces of flavoring material.

Claim 24 (new): A cheese snack as set forth in claim 16 and further comprising an exterior coating on said cheese product.

Claim 25 (new): A cheese snack as set forth in claim 16 wherein said flavoring core contains at least one hydrocolloid in an amount sufficient to prevent said flavoring core from leaking out of said cheese product but to prevent said core from drying out.

Claim 26 (new): A cheese snack as set forth in claim 25 wherein said one hydrocolloid is present in an amount equal to about 0.2-0.4% by weight.

Claim 27 (new): A cheese snack as set forth in claim 25 wherein said hydrocolloid is selected from the group consisting of guar, locust, xanthan, agar and carrageenan.

Claim 28 (new): A cheese snack as set forth in claim 16 wherein said flavoring core consists of non-cheese substances.

Claim 29 (new): A cheese snack as set forth in claim 16 wherein said cheese snack has a normal processing temperature.

## REMARKS

This Amendment is submitted attendant to the filing of a Request for Continued Examination and is in response to the Office Action mailed March 18, 2003, which was made final. In the March 18, 2003 Office Action, the Examiner rejected claims 1-13 under 35 U.S.C. § 103(a) as having been allegedly obvious over *Dupas* in view of U.S. Patent Nos. 5,709,900 (*Miller*), 5,807,601 (*Carpenter*), and 6,113,953 (*McMahon*).

The Applicant respectfully submits that none of the prior art references, independently or in combination, refers to, teaches or suggests a product – a cheese snack – having an inner core *normally flowable at room temperature* wherein the core *does not leak or flow out* of the cheese snack when stored at room temperature, or wherein water within the inner core does not migrate from the core to the outer layer or coating. The references do not address the problems of leakage or migration, nor do they motivate a person skilled in the art to solve these problems. There is simply no suggestion to modify the references or to combine them.

Applicant believes that the process described in the specification is novel in addition to the novel product claimed. The process enables the product. Claim 1 has been amended to eliminate the reference to processing in order to clarify this.

The Examiner's principal basis for rejection is that "the use of stabilizers in cheese products is well-known and within the skill of the art." The prior art referenced by the Examiner, however, teaches the use of stabilizers in processed cheeses for purposes other than that for which applicant uses maltodextrine, starch or hydrocolloids: (a) "to aid in improving the melting properties" and "control the moisture content" of the cheese (*McMahon*), and (b) as "mimetics" to attempt to make

imitation cheese feel and taste like natural cheese (*Carpenter and Miller*). *Carpenter*, in fact, teaches away from use of starches *as stabilizers* because they are too expensive. The cited references do not suggest or teach the use of maltodextrine, starch or hydrocolloids to prevent (i) leakage from the ends of a cheese snack or (ii) water migration between the core and the outer cheese layer. Moreover, none of the secondary references suggest or teach the use of stabilizers in a more-fluid flavoring core, *e.g.*, a non-cheese core like pizza sauce or salsa.

Applicant has amended independent Claim 1 to clarify that the outer layer of the cheese snack comprises a natural cheese, as opposed to a processed cheese. A corresponding amendment is also made in dependent Claim 2. This amendment finds support throughout the specification. (Application at 3, lines 14-18; and at 7, lines 13-14). Because each of the secondary references relate to processed cheeses, this amendment further distinguishes Applicant's invention from the prior art.

Furthermore, as set forth in the specification, the use of a stabilizing agent is significant in this invention, in connection with a *natural cheese* product, to reduce water migration:

it is critical to minimize migration of water and other solutes [between the core and outer cheese layer]. The coating, consisting of natural cheeses like cheddar and mozzarella, contains viable culture. Thus, their physicochemical properties will continue to change during refrigerated storage. The core is heat treated with a stabilizing agent to initiate activation and hydration of stabilizing agents.

(Application at 7, lines 9-15). In the processed cheeses of the prior art, such water migration is not an issue.

Also, it is important to note that stabilizers may not be used in natural cheeses. When they are, federal regulations require that the cheese snack be labeled as a "processed" cheese.

*Dupas*, the primary reference, discloses one method by which leakage had been addressed prior to the Applicant's invention: use of a cup or container when a non-cheese core is co-extruded within a cheese outer layer. *Dupas*, however, does not disclose, suggest or teach the use of maltodextrine, starch or hydrocolloids to prevent leakage of a non-cheese core which is normally flowable at room temperature. This is a principal problem which the Applicant's invention solves, as noted in the application: "Another object is to provide an improved composite cheese snack in which co-extruded flavoring core is formed within an outer annular cheese product such that the flavoring core will not substantially flow out of the exposed end face(s) of the snack when stored at room temperature." (Application at 4, lines 1-4). This stated object contradicts the Examiner's statement that Applicant's invention obtains only "expected results."

The specification further confirms:

This invention overcomes the problem of a relatively-fluid central core leaking out of the exposed end faces of a cheese snack. The technologies heretofore developed are believed to have failed to permit the use of softer more-fluid core materials, without leakage of the core material from the exposed end face(s) upon traverse cutting or slicing of the composite food product. In the prior art, the probability of core material leakage required that the core be completely encapsulated within an outer layer, or required extrusion of the product in to cup. The present invention permits co-extrusion and transverse cutting or severance of co-extruded masses having softer and more-liquid cores, without leakage of the core material from the exposed end face(s) of the cheese snack during further processing steps, including packaging. (Application, at 2, lines 13-22).

Nothing in the prior art even suggests a solution to the problem of leakage of a core normally flowable at room temperature. Simply put, the application discloses a product which had not been invented previously, together with the process by which it is made.

In addition, the reduction or elimination of water migration between the core and the outer cheese layer is not addressed by the prior art, nor is a solution to the problem suggested. Applicant's specification clearly states:

The secondary purpose of stabilizing the core material is directed to managing water migration between core and outer coating. Each of the components (*i.e.*, core and coating foodstuffs) has unique functional and organoleptic properties. Therefore, it is critical to minimize migration of water and other solutes therebetween. To meet commercial requirements, products have to remain acceptable, judging by organoleptically and microbiological standards, for up to 120 days at storage temperatures of up to about 7°C. The coating, consisting of natural cheeses like cheddar and mozzarella, contains viable culture. Thus, their physicochemical properties will continue to change during refrigerated storage. The core is heat treated with a stabilizing agent to initiate activation and hydration of stabilizing agents.

The freezing profile, energy-required-to-freeze, heat transfer and expansion/contraction coefficients of both core and coating materials are significantly different. To prevent the leakage of the low viscosity fluid core upon transverse cutting, the co-extruded strings should be cooled to a sub-zero temperature in few seconds . . . .

(Application at 7, lines 7-20). Thus, the problem of water migration between the core and the outer cheese layer, and the unexpected result of managing such water migration, are clearly described in the specification. Neither the problem nor the solution are taught or suggested by the prior art.

The Applicant believes original Claim 10 distinguishes from the prior art in this regard. In addition, new claims 16-30 have been added to address the Applicant's novel solution to the water migration problem.

*Dupas*, the primary reference, discloses a co-extruded cheese snack with a cheese or non-cheese core. When a non-cheese core (*e.g.* strawberry pulp [Col. 5, lines 36-40, Figs. 5, 6]; or tomato and tomato concentrate [Col. 5, lines 41-45, Fig. 7]) is used, however, a "container" or "cup"

is used [Figs. 5, 6, 7]. Claim 11 of the *Dupas* patent confirms the need, in that invention, for a container or "vacuum wrapping" in the patented process when a non-cheese core is co-extruded within a cheese outer layer. Claim 1 (and dependent claims 2-10) define a co-extruded product consisting of a *cheese core* with a different cheese layer about the core. No cup, container or vacuum wrap is specified in those claims.

In this regard, new Claim 14 has been added. While Applicant does not believe this claim is necessary to distinguish from the prior art, this claim provides for a non-cheese core, further distinguishing from the prior art which discloses stabilizers only in connection with processed cheeses.

The Examiner states that the claims in the present application differ from *Dupas* only as to the use of additional components. Significantly, however, co-extrusion in *Dupas* is performed in a cold compression process at a temperatures of 0° to 30° C, and its claims are so limited. Applicant's invention, by contrast, provides no such limitation, as core extrusion may be performed "using a conventional cooker-stretcher where cheese enters the extrusion device at temperatures on the order of 54-60°C, but sometimes as high as 75°." (Application at 2, lines 23-25). "In the inventive process, . . . the curd is heated and kneaded with the aid of warm water and twin screws." (Application, p. 5, line 32 through p. 6, line 1). *Dupas*, on the other hand, teaches cooling. "Conventional" equipment, in a normal cheese operation, at normal operating temperatures, is used to produce the Applicant's cheese snack. Cold compression machinery operating at 0° to 30° C is not required.

In this regard, claim 15 has been added. While Applicant does not believe this claim is necessary to distinguish his invention from the prior art, this new dependent claim covers a co-

extrusion process performed at normal operating temperatures, clearly distinguishing this invention from that disclosed in *Dupas*.

Based on the foregoing, the Applicant respectfully submits that the Examiner has not demonstrated a *prima facie* case of obviousness. To establish obviousness, (1) the prior art itself must suggest or motivate the modification of a reference or the combination of reference teachings, (2) the prior art must teach or suggest a reasonable expectation of success, and (3) the prior art must teach or suggest all of the claim limitations. M.P.E.P. § 2143. The "teachings of references can be combined only if there is some suggestion or incentive to do so." *ACS Hospital Sys., Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577 (Fed. Cir. 1984).

There is no teaching or suggestion in the prior art for the combination of characteristics claimed, nor does the prior art discuss any means of optimizing the claimed characteristics. The cited prior art does not disclose all the claimed characteristics of the co-extruded cheese snack, nor does it disclose or identify these characteristics as being of the type that are desired, nor does it disclose the type of experimentation needed to accomplish Applicant's invention. Accordingly, it is respectfully submitted that Applicant's claimed invention would not have been obvious to one skilled in the art.

In summary, none of the prior art references discloses or suggests a cheese snack with a non-cheese core which does not leak at room temperature, and in which water does not migrate from the core. In addition, the secondary references teach the use of starch, maltodextrin, hydrocolloid stabilizers and gums in cheese for purposes *different from* those for which the Applicant uses such compositions.

This Amendment and these remarks are believed to be fully responsive to the Office Action mailed March 18, 2003, are believed to squarely address each and every ground for rejection or objection raised by the Examiner, and are further believed to materially advance prosecution of this application toward immediate allowance.

Formal allowance of claims 1-15, as amended, is therefore courteously solicited.

Respectfully submitted,

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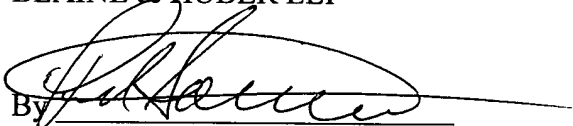
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I certify that this correspondence is being forwarded to the United States Patent and Trademark Office by facsimile transmission to 703-872-9311 this 9<sup>th</sup> day of September, 2003, and is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, this 9<sup>th</sup> day of September, 2003.

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